

ESP Advanced training center for Hematopathology Nijmegen, The Netherlands

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The diagnosis of diseases of the hematopoietic system is a complex process that involves a variety of technologies, including histology, cytology, immunohistochemistry, a variety of molecular tests and flow cytometry. Crucial is the integrated approach where all the information on a patient is collected into one report and discussed in a multidisciplinary setting, which forms the basis of clinical decision making. The Hematopathology team at the Radboudumc in Nijmegen consist of (hemato)pathologists, clinical scientists, flow-cytometrists/immunologists, hematologists and molecular biologists, each with a great body of expertise and working together on the integrated approach of hematopathology.

The department offers 3 months trainings that include all aspects of hematopathology, based on the routine daily service of a university referral center, supplemented with consultation cases and cases from the archive. These trainings are given to residents/trainees in pathology in the Netherlands and are also open for international colleagues (in English). Due to the nature of the cases (many myeloid diseases and unusual lymphoproliferative diseases) a solid basic knowledge of hematopathology is required for maximal benefit. The training can start at any time during the year. A focus on molecular diagnostics or participating in a research project can be discussed, especially if the training is prolonged (6 months instead of 3 months).

The Radboud university international office supports international visitors regarding all aspects of their visit to the Radboudumc, including support to find housing (in a variety of price ranges), visa items, letters of invitation, social contacts with other international students etc.

Konnie Hebeda and Patricia Groenen are both internationally recognized experts in the field of hematopathology and clonality studies, who have had training in the Netherlands and the USA, are active in the European Bone Marrow Working Group and in EuroClonality, which is the name of the international consortium for development of novel PCR-based methods that allow detection of gene rearrangements, particularly immunoglobulin (IG) and T-cell receptor (TCR) gene rearrangements, formerly known as BIOMED-2 (<http://www.euroclonality.org/>).

The group publishes regularly in their area of expertise (a few references are included):

Hebeda KM, Tzankov A, Boudova L, Saft L, Hasserjian RP, de Boer M, Fend F, Orazi A, Leguit R. Challenges in Diagnosing Myelodysplastic Syndromes in the Era of Genetic Testing: Proceedings of the 13th Workshop of the European Bone Marrow Working Group. *Pathobiology*. 2018 Jul 6:1-14.

van den Brand M, Scheijen B, Hess CJ, Van Krieken JHJM, Groenen PJTA. Pathways towards indolent B-cell lymphomas – Etiology and therapeutic strategies. *Blood Rev*. 2017 Nov;31(6):426-35.

van den Brand M, Rijntjes J, Hebeda KM, Menting L, Bregitha CV, Stevens WB, van der Velden WJ, Tops BB, van Krieken JH, Groenen PJ. Recurrent mutations in genes involved in nuclear factor-kappaB signalling in nodal marginal zone lymphoma-diagnostic and therapeutic implications. *Histopathology*. 2017 Jan;70(2):174-84.

Marneth AE, van Heerde WL, Hebeda KM, Laros-van Gorkom BA, Barteling W, Willemsen B, de Graaf AO, Simons A, Jansen JH, Preijers F, Jongmans MC, van der Reijden BA. Platelet CD34 expression and alpha/delta-granule abnormalities in GFI1B- and RUNX1-related familial bleeding disorders. *Blood*. 2017 Mar 23;129(12):1733-6.

Tzankov A, Hebeda K, Kremer M, Leguit R, Orazi A, van der Walt J, Gianelli U. Plasmacytoid dendritic cell proliferations and neoplasms involving the bone marrow : Summary of the workshop cases submitted to the 18th Meeting of the European Association for Haematopathology (EAHP) organized by the European Bone Marrow Working Group, Basel 2016. *Ann Hematol*. 2017 May;96(5):765-77.

Schreuder MI, van den Brand M, Hebeda KM, Groenen P, van Krieken JH, Scheijen B. Novel developments in the pathogenesis and diagnosis of extranodal marginal zone lymphoma. *J Hematop*. 2017 Dec;10(3-4):91-107.

Langerak AW, Brüggemann M, Davi F, Darzentas N, van Dongen JJM, Gonzalez D, Cazzaniga G, Giudicelli V, Lefranc MP, Giraud M, Macintyre EA, Hummel M, Pott C, Groenen PJTA, Stamatopoulos K; EuroClonality-NGS Consortium. High-Throughput Immunogenetics for Clinical and Research Applications in Immunohematology: Potential and Challenges. *J Immunol*. 2017 May 15;198(10):3765-3774.

Bystry V, Reigl T, Krejci A, Demko M, Hanakova B, Grioni A, Knecht H, Schlitt M, Dreger P, Sellner L, Herrmann D, Pingeon M, Boudjoghra M, Rijntjes J, Pott C, Langerak AW, Groenen PJTA, Davi F, Brüggemann M, Darzentas N; EuroClonality-NGS. ARResT/Interrogate: an interactive immunoprofiler for IG/TR NGS data. *Bioinformatics*. 2017 Feb 1;33(3):435-437

Strobbe L, Valke LL, Diets IJ, van den Brand M, Aben K, Raemaekers JM, Hebeda KM, van Krieken JH. A 20-year population-based study on the epidemiology, clinical features, treatment, and outcome of nodular lymphocyte predominant Hodgkin lymphoma. *Ann Hematol*. 2016 Feb;95(3):417-23.

de Winde CM, Veenbergen S, Young KH, Xu-Monette ZY, Wang XX, Xia Y, Jabbar KJ, van den Brand M, van der Schaaf A, Elfrink S, van Houdt IS, Gijbels MJ, van de Loo FA, Bennink MB, Hebeda KM, Groenen PJ, van Krieken JH, Figdor CG, van Spriel AB. Tetraspanin CD37 protects against the development of B cell lymphoma. *J Clin Invest*. 2016 Feb 1;126(2):653-66.

van den Brand M, Balague O, van Cleef PH, Groenen PJ, Hebeda KM, de Jong D, van Krieken JH. A subset of low-grade B cell lymphomas with a follicular growth pattern but without a translocation shows features suggestive of nodal marginal zone lymphoma. *J Hematop*. 2016 Mar;9(1):3-8.

de Laak-de Vries I, Siebers AG, Burgers L, Diepenbroek C, Link M, Groenen P, Van Krieken H, Hebeda KM. How we do: Bone marrow biopsy diagnostics within two days. *J Hematopathol*. 2016;9:67-71.